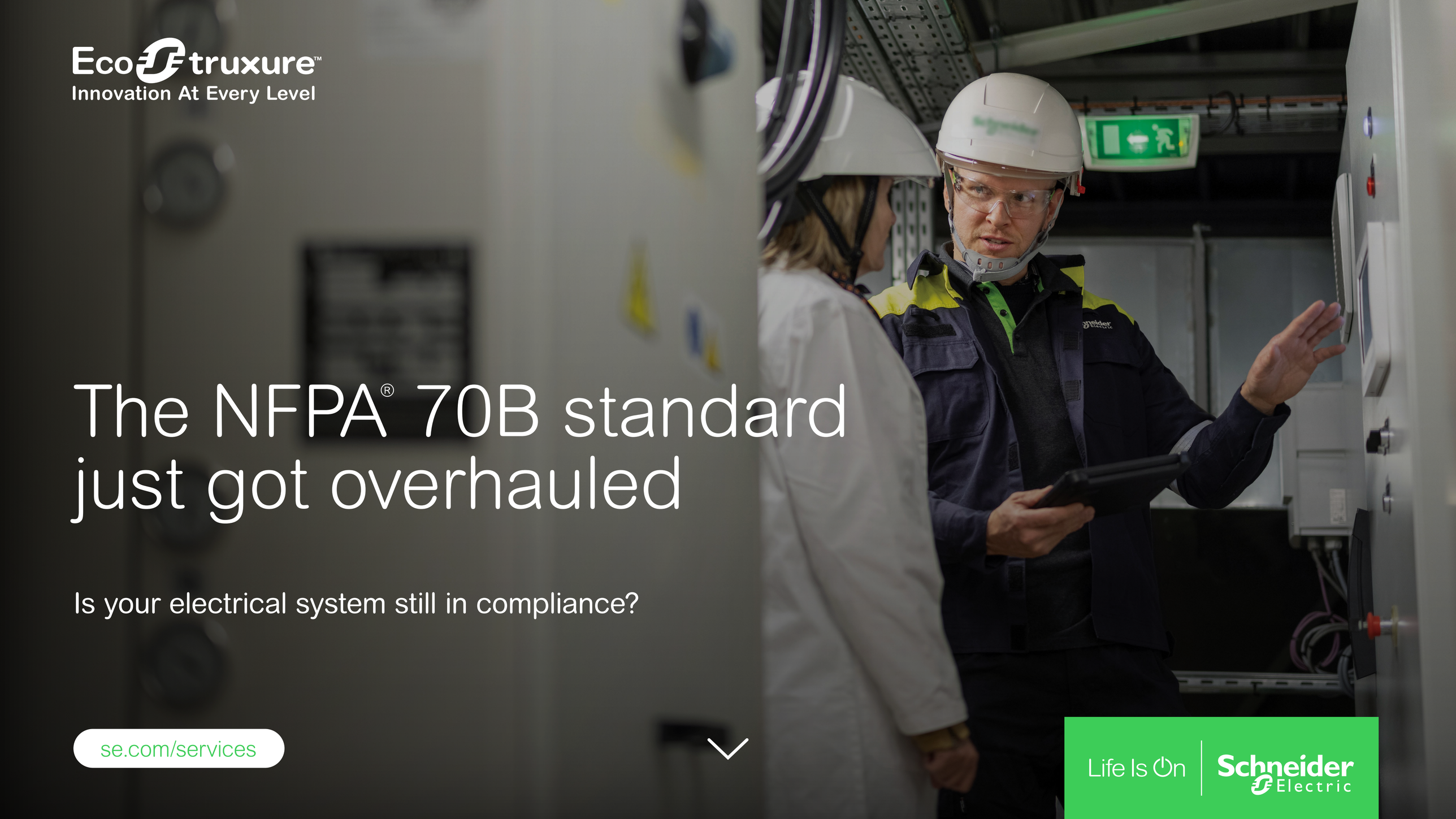

EcoStruxure™
Innovation At Every Level
The NFPA® 70B standard just got overhauled
Is your electrical system still in compliance?
se.com/services
Life Is On
Schneider Electric

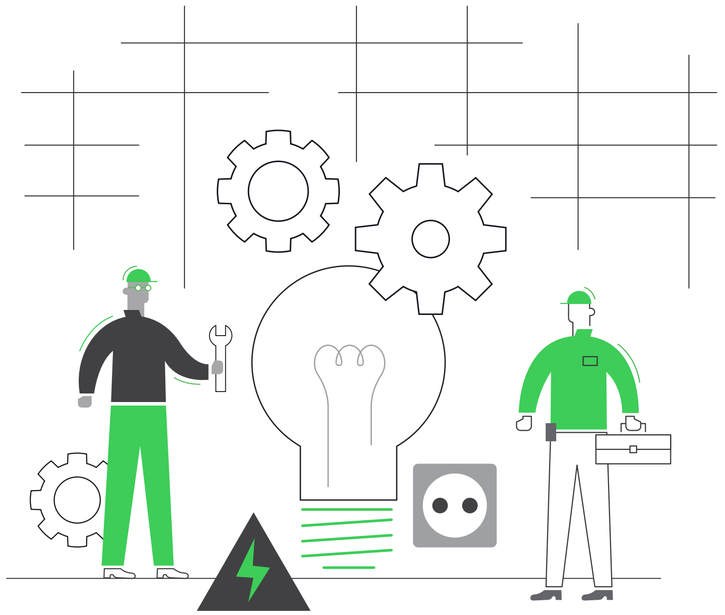
Table of contents

Introduction

Introduction

This eGuide outlines the changes in the National Fire Protection Association **(NFPA®) 70B: Standard for Electrical Equipment Maintenance, 2023 edition** – specifically, its dramatic transition from a recommended to standard practice – and how these changes can help reinforce a culture of maintenance and safety within organizations. These standards encourage a culture of preventative maintenance in facilities and highlight the advantages that digitalized electrical networks can provide related to condition-based maintenance.

- About NFPA 70B
- Why NFPA 70B matters
- The role of an effective electrical maintenance program
- How effective condition-based maintenance programs can help save costs and keep your people and your installations safe
- Examples and best practices
- NFPA 70B as a pillar of your sustainability commitments



Safety is a top priority for Schneider Electric™ – people safety, electrical safety, and process safety. We are also committed to improving electrical standards and ongoing initiatives.

Our innovative solutions through our **EcoCare** membership plan help you achieve business outcomes – from safety and compliance, resilience and reliability, efficiency and cost savings, to sustainability and circularity.

Discover EcoCare

NFPA 70B

NFPA 70B background

NFPA 70B was first published in 1975 to outline recommended electrical maintenance practices and serve as a guideline for establishing and implementing an effective, safe, and reliable maintenance program.

There are also two other standards related to NFPA 70B:

1. **NFPA 70E, the "Standard for Electrical Safety in the Workplace,"** provides requirements for protecting workers from electrical hazards in the workplace. Primarily intended for those exposed to electrical hazards, it also requires an electrical safety program that must consider the condition of maintenance.

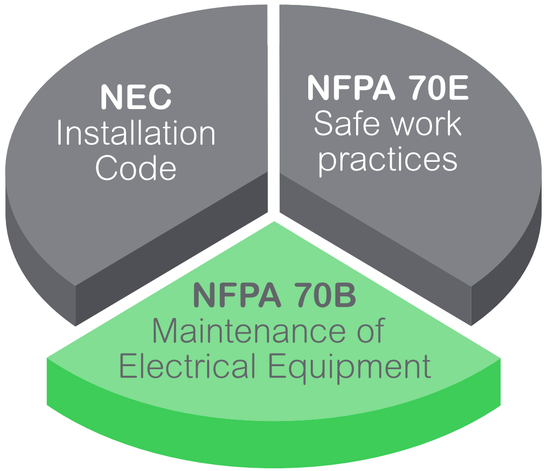
2. **NFPA 70, the National Electrical Code® (NEC),** requires the safe installation of electrical wiring and equipment. The NEC® ensures electrical systems and equipment are installed safely and reliably. It covers a wide range of topics related to electrical safety, including wiring methods, grounding, and overcurrent protection.

While NFPA 70B, NFPA 70E, and NEC have different focuses, these standards and regulations work together to ensure all electrical systems and equipment are installed, operated, and maintained safely.

Did you know?

OSHA® requires employers to provide a workplace free from serious recognized hazards. A proven approach is to follow national consensus standards like NFPA 70E and 70B.

A comprehensive approach to electrical safety



NFPA 70B in 2023: A standard practice

The 2023 edition of NFPA 70B positions maintenance at the forefront of organizations. **No longer a recommended practice, it is now standard.** Its language has changed from ‘should’ or ‘should not’ to ‘shall’ or ‘shall not.’

This shift from recommendation to standard came about with dedicated cooperation across all industries and support from member organizations and technical committee members.

This is a major, transformational change from the previous version with far-reaching impacts related to maintenance, regardless of facility type.

Guide	Recommended practice	Standard	Code
Informative, with advisories and how-tos	Explanatory, outlining suggestions and best practices	Compulsory, detailing procedures required to meet the code	Industry-based law enacted by national authorities

NFPA 70B in 2023: A standard practice

To ensure compliance, **click to read more** about what businesses can expect:

1. **Creation and documentation of an electrical maintenance plan**
2. **Renewed focus on maintenance**
3. **Risk management**
4. **Improved safety**
5. **Shared benchmarks and results**
6. **Training**
7. **Support services**

Why NFPA 70B matters

NFPA 70B provides a safe, reliable, and cost-effective electrical equipment maintenance framework. By following the guidelines in NFPA 70B, your organization helps protect employees, comply with regulations, and optimize operations.

- **Safety**
- **Compliance**
- **Cost savings**
- **Reliability**

2023 NFPA 70B – Electrical equipment maintenance drives services and new provisions for EcoStruxure™ and Advisor platforms regulatory provision

- OSHA® regulations are federal and state laws for electrical worker safety
- NFPA 70E requires an electrical safety program
- NFPA 70E must contain elements that consider the condition of maintenance
- NEC has references to 70B (emergency systems and photovoltaic)

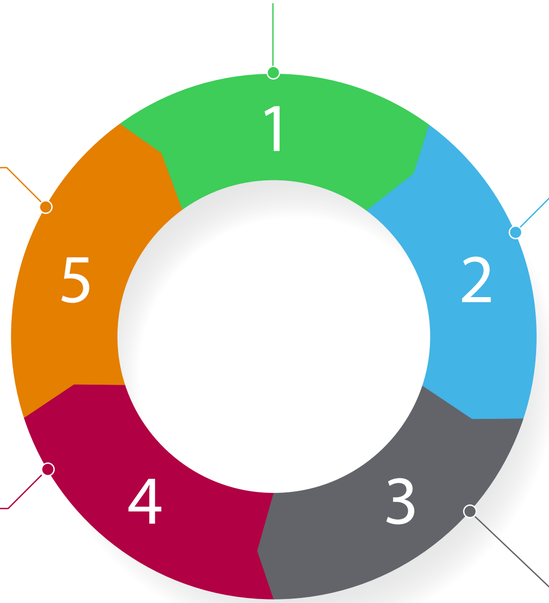
How do I consider the condition of maintenance

- Electrical equipment manufacturer's instructions
- NFPA 70B is the electrical equipment maintenance industry standard
- NFPA 70B requires an electrical maintenance program
- NFPA 70B must contain elements that consider the condition of maintenance

Areas of emphasis in the new standards

The NFPA 70B standard details comprehensive standards for electrical maintenance, with an emphasis on the following five areas:

Electrical equipment: standards for maintaining all types of electrical equipment, including transformers, circuit breakers, and switchgear.



Maintenance procedures: standards for conducting regular maintenance, such as visual inspections, cleaning, lubrication, and testing.

Maintenance documentation: standards requiring detailed records of all maintenance activities, including test results, repairs, and replacements to ensure compliance and facilitate continuous improvement.

Training: the importance of training personnel responsible for maintenance tasks and emphasizing the need for ongoing education and certification.

Safety: the standard prioritizes safety and provides guidance on identifying and mitigating electrical hazards.

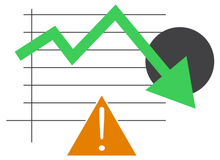
Learn more about building energy codes, standards, and regulations, and how to design an electrical system to help maximize energy efficiency and building performance.

Download white paper

Compliance criticality

Poor maintenance has a tremendous cost

All electrical installations need maintenance. There is a significant price to pay (beyond violating new standards) for poor maintenance:



Downtime that causes loss of operations or disrupts workflow and employee productivity

Costly repairs due to delaying simple repairs – repairs can be significantly increased by waiting for device failure before acting

Employee exposure to electrical hazards. Maintenance helps ensure safety is at the forefront of your organization

Energy inefficiency through larger utility bills, poorly optimized devices, and power quality issues

Most organizations already understand why maintenance is important. The key is to understand how to spur this knowledge to action.

A reduced skilled workforce and a lack of resources also challenge today's facilities. They also may not have digitized their power network and don't have digital communicating devices placed at key areas or on critical loads within their electrical infrastructure.

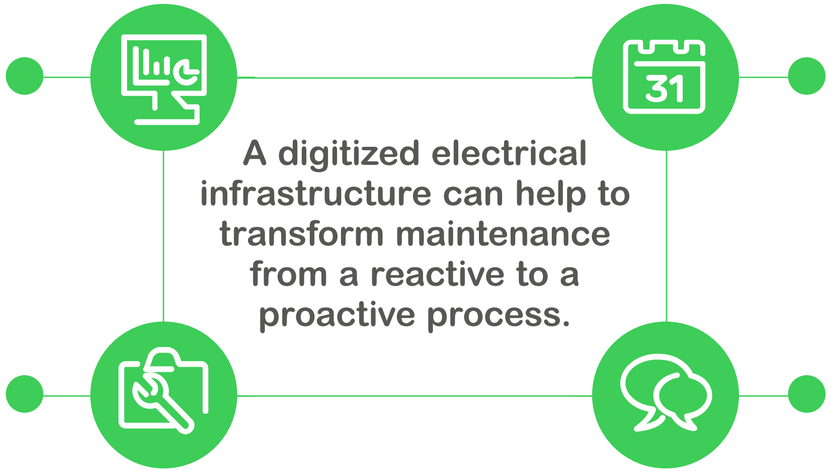
The answer lies in the digital transformation of your power network that fully enables condition-based maintenance.

A digitized electrical infrastructure optimizes maintenance

A digitized electrical infrastructure provides real-time data and insights that can be used to optimize maintenance schedules, reduce downtime, and improve overall system reliability. For example:

Real-time monitoring of critical components allows for early detection of potential issues. This data can identify patterns and trends that can inform maintenance schedules, helping prevent failures before they occur.

Predictive analytics uses the data collected to identify potential failure modes and predict when components will likely fail. Use this information to schedule maintenance activities in advance, reducing downtime and avoiding unexpected failures.

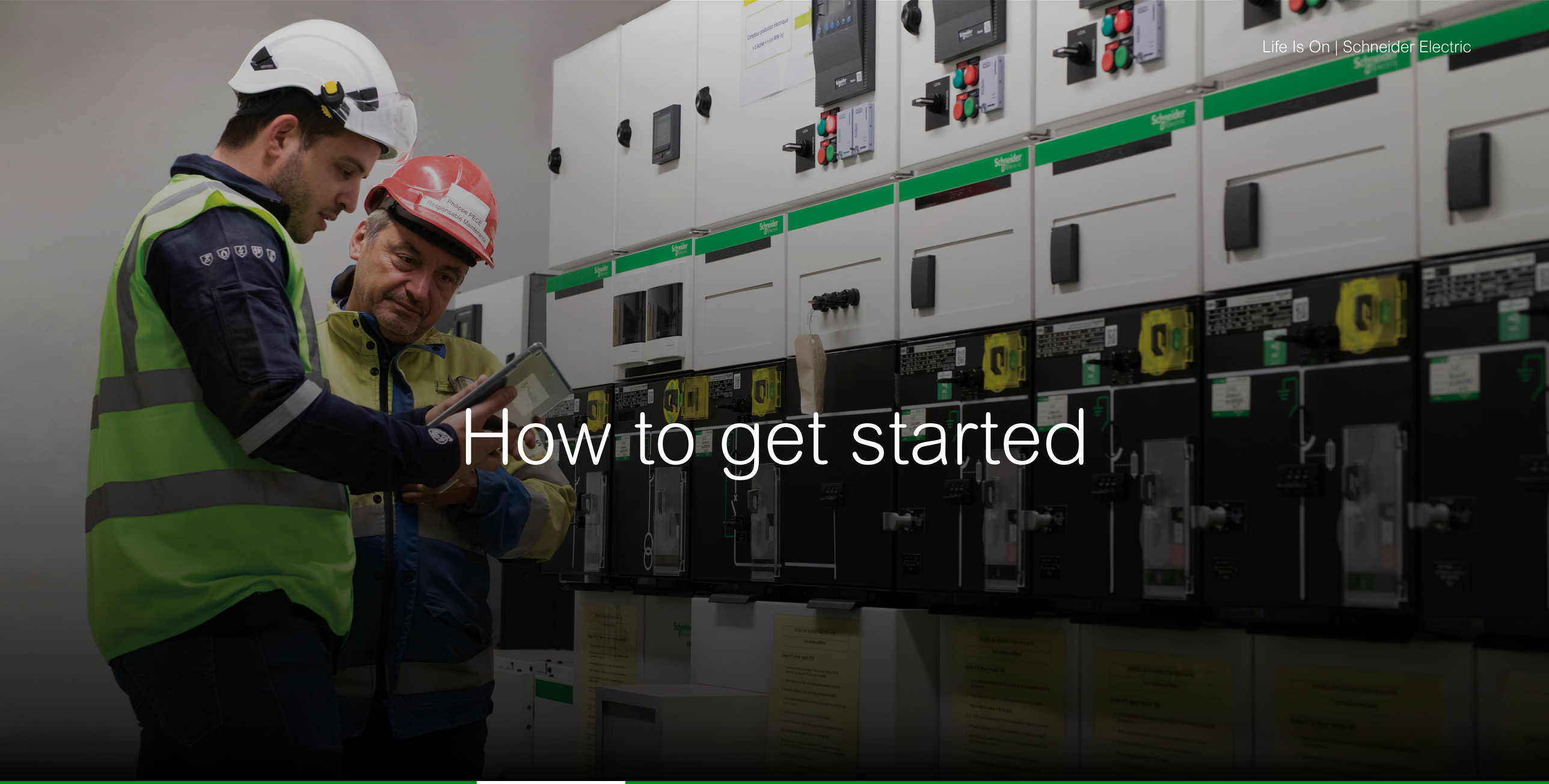


Condition-based maintenance is a preventive maintenance method that monitors the condition of equipment to determine which maintenance tasks need to be carried out and when.

Improved communication between maintenance teams allows for better collaboration and coordination. This can help to ensure that maintenance activities are scheduled efficiently and that the right resources are available to complete the work.

Read our white paper about the benefits of shifting from traditional to condition-based maintenance

Learn more



How to get started

How do we start?

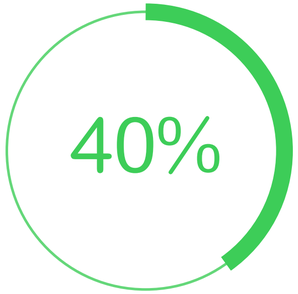
Schneider Electric can help maintain and optimize your assets and equipment. Our EcoStruxure™ platform and team of experts enable condition-based maintenance, helping reduce downtime and extend the lifespan of equipment. We can help:

1. **Strategize and explore your options** to decide on the actions to take, and remove any guesswork from your plan by modeling the impacts of your strategy and new build or retrofit scenarios. EcoConsult Electrical Digital Twin services can help.

2. **Add digitized products and sensors** at key locations or inter-ties. Digitalizing makes the invisible visible, gives you access to important maintenance data, and allows connections to other plants, buildings, or energy management systems.

3. **Remotely monitor** equipment in real time, from anywhere, to help identify issues quickly and recover faster.

4. **Manage assets** with a complete view, including equipment performance, maintenance history, and real-time status, for data-driven decisions about when to repair, replace, or retire equipment.



reduction in maintenance activities by performing condition-based maintenance.

Find out how our Consulting services can help you overcome your challenges.

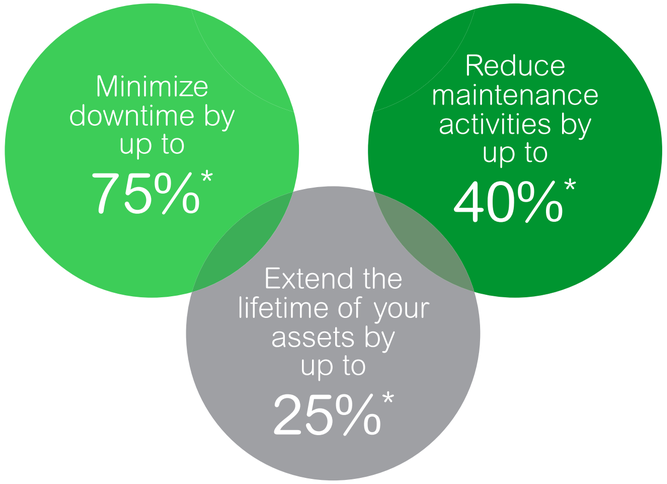
Learn more

NFPA 70B also contributes to sustainability transformation

While the ultimate goal of NFPA 70B is safety, compliance with its standards also helps organizations become more sustainable. Most businesses today are committed to 2035 – 2050 net-zero goals. NFPA 70B can play a critical role, adding resilience and a ‘standard of care’ by ensuring facilities operate efficiently, reducing energy consumption and waste, and reducing emissions.

1. **Optimizing energy usage**
2. **Using renewable energy**
3. **Preventing system failure**
4. **Identifying potential efficiency improvements**
5. **Complying with regulations and standards**
6. **Extending the lifespan of the equipment**

Benefits of an EcoCare for Electrical Distribution Services membership



*These percentages are non-contractual and are based on Schneider Electric’s experience and expertise with respect to the main root cause of downtime observed and for which Schneider Electric has developed solutions.

What is a circular electrical system and how does it support sustainability?

Learn more

Maintenance checklist

A safe, reliable electrical infrastructure requires a well-planned electrical maintenance program:

1. Conduct an assessment
2. Identify priorities
3. Determine maintenance tasks
4. Create a schedule
5. Establish procedures
6. Assign responsibility
7. Establish a tracking system

Get started on your checklist with the help of an EcoConsult Audit.

Learn more

Success stories – EcoCare powered by the EcoStruxure Digital platform

Powerful insights from anywhere: BASF

Breakthroughs in connectivity, sensor technology, and advanced analytics create new opportunities to improve maintenance strategies. Schneider Electric services like EcoStruxure Asset Advisor and EcoStruxure Power Monitoring Expert provide BASF with a consolidated view of its operations so they can remotely monitor and manage their assets' health from anywhere.

"EcoStruxure Asset Advisor is helping to prevent catastrophic failures. It's getting the right data at the right time. And in the end, data is valuable."

— Lee Perry, Electrical Design Engineer, BASF

Results

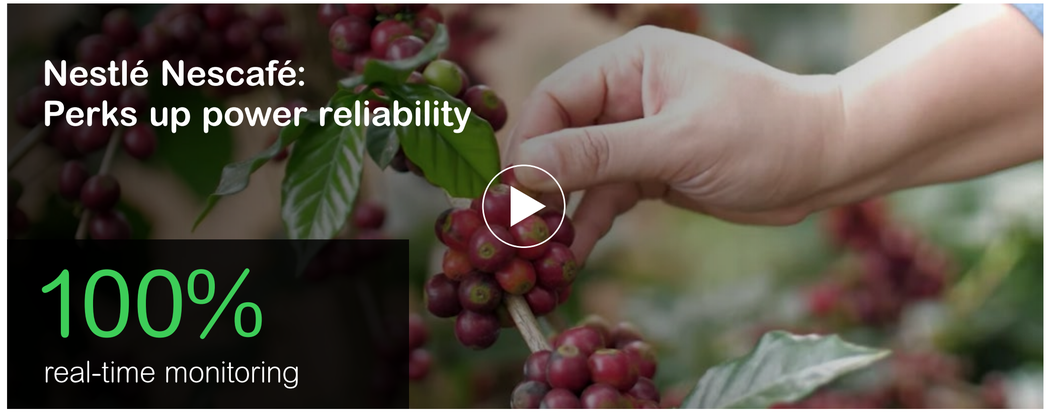
Over 100 variables get measured and computed through EcoStruxure Asset Advisor to provide accurate and reliable condition monitoring for its new Beaumont plant.

BASF now remotely monitors the pulse of its substation assets through their customer dashboard with a global health index and specific asset status.

EcoStruxure Asset Advisor enables more predictable asset performance, helping prevent catastrophic failures, improve plant safety, and increase operational efficiency.

Always-on operational resiliency and efficiency: Nescafé

Nestlé Nescafé is the largest soluble coffee facility in the world, responsible for more than one million jars of coffee produced daily. They use Schneider Electric's EcoStruxure Asset Advisor for real-time visibility into their electrical equipment, allowing their engineers to monitor assets remotely and use data analytics to implement predictive maintenance.



"EcoStruxure Asset Advisor has allowed us to identify hot spots and attack them before they become a problem – saving us costly downtime, greatly enhancing our ability to respond quickly to changes in demand and ultimately better serve our customers and reduce our operational carbon footprint."

— Luis Gilberto López Páez, electricity specialist in Nestlé Toluca Cafés

Results

EcoStruxure Asset Advisor allows visibility into power systems and is remotely managed around the clock, delivering productivity, efficiency, and maintenance benefits.

Improved reliability of the facility's electrical equipment helps produce approximately one million jars daily.

Schneider Electric's Connected Services Hub allowed engineers to react and avoid three unplanned stoppages that could have cost Nestlé up to $52,000 per hour.

Leveraging insights to avoid power failures: University of Rochester Medical Center

Maintaining a power infrastructure spanning 5 million square feet (464,500 square meters) of hospital and healthcare research space with limited resources is challenging – deploying staff to physically measure, survey, and perform preventive maintenance on over 26,000 pieces of equipment is costly and time intensive.

"In two incidents alone, we have saved several hundred thousand dollars."

— Mark Schwartz, Director of Facility Operations, URMC

Results

EcoStruxure services connect to and monitor the University's most critical electrical distribution assets via the cloud. Service experts analyze performance data and provide actionable insights to help facility management deploy resources efficiently and help avoid equipment failure.

Optimized the energy infrastructure for predictive, condition-based maintenance.

Saved nearly $1 million through the early discovery of equipment problems – a 20 to 1 return on investment (ROI).

Peace of mind for facility management, knowing their equipment is continually being monitored.

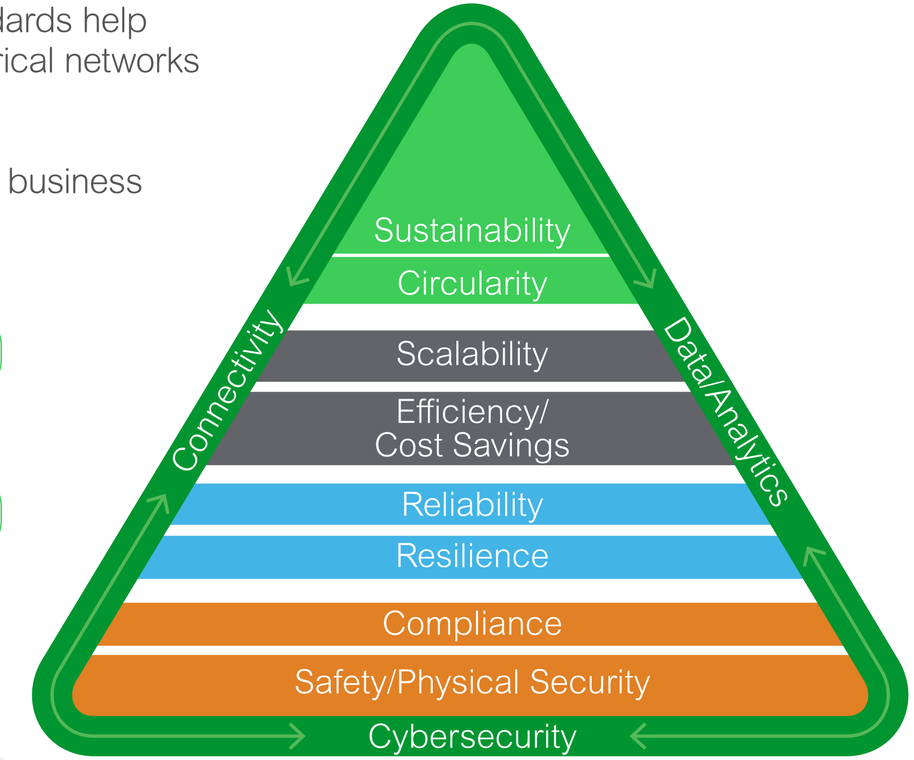
Conclusion

NFPA 70B is a transformational opportunity

Leading the way to a more digitalized, well-maintained electrical infrastructure, the 2023 standards help encourage a culture of maintenance in facilities and highlight the advantages digitalized electrical networks can provide related to condition-based maintenance.

Schneider Electric Services can help unlock these business advantages and support critical business outcomes, including:

- **Safety and compliance**
- **Efficiency and cost savings**
- **Reliability and resilience**
- **Sustainability and circularity**



Now's the time to unlock the full potential of your electrical equipment – and our **EcoCare** membership plan can help get you there.

Learn more

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Learn more about how Schneider Electric Services can help.

se.com/services

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